

March 87

# THE VERSATILE EDUCATION TERMINAL

# GIGI





## Meet Education's Most Versatile Terminal

Digital has a new member in its educational computing family. GIGI (General Imaging Generator and Interpreter) is a specially-designed, low-cost graphics terminal with built-in features that make it the most versatile terminal you'll ever need.

We can say this with confidence because for more than 10 years we've dedicated resources to continually develop powerful hardware and software systems tailored to the needs of the education community. This commitment includes the development of flexible and reliable terminals to better distribute system power directly to the users that need it. And because we have more experience with interactive timesharing systems than any other computer company, we understand how terminals are used. Today no one builds as many different kinds of terminals as Digital, and many of these have become accepted industry standards.

Now GIGI sets another standard—this one in low-cost educational terminal technology. GIGI is the only terminal that gives you graphics, intelligence, color, and special applications software PLUS the capability to access Digital's powerful educational computers. GIGI operates with the RSTS/E, VMS, and TOPS-20 operating systems, letting you use all the software and capabilities available on the host computer.

GIGI increases the value and functionality of Digital's systems in a way you never thought possible before—and at a price most educational institutions can afford. Just take a look at the many features that make GIGI the most versatile educational terminal you'll ever use.

## GIGI's Feature Highlights

- Portable, modular, microprocessor-based keyboard
- Interactive, easy-to-use, powerful graphics
- Support for a wide range of monochrome and color monitors
- Multiple colors for display: 8 colors/8 shades of gray
- ReGIS—Remote Graphics Instruction Set
- GIGI BASIC, a tailored version of Microsoft's floating-point BASIC
- Easy-to-use, interactive applications software, including:
  - Text Editor
  - Graphics Picture Editor
  - Character Set Editor
  - Data Plotting Package
  - Slide Projector System
- Graphics library for developing graphics applications
- Multiple character sets
- Polyurethane keyboard overlays for use with user-defined character sets
- Support for VT52 and ANSI terminal interface conventions
- Complete set of quality user documentation
- Interface to GIGI's new, low-cost DECwriter IV Graphics Printer
- Graphics tablet interface
- Built-in, self-test diagnostics
- Rugged GIGI carrying cases
- Unique customer service programs, including:
  - Self-paced, CAI (computer-aided instruction) training

- Return-to-Servicenter maintenance (including reusable shipping cartons)

## 3-in-1 Terminal

GIGI is a **text** terminal that transfers data into and out of a host computer. GIGI is an **intelligent** terminal with firmware that assists terminal operation and local processing of BASIC programs. And GIGI is a **graphics** terminal that creates and manipulates powerful graphics and text images.

Whichever method or combination of operation you choose, GIGI transforms your applications into exciting and motivating learning experiences. Applications like computer programming, instructional simulations, problem solving, business graphics, engineering/scientific analysis, and graphics design. Applications you do now—and in the future. Applications that need GIGI—the versatile, affordable, adaptable education terminal from Digital.



## Designed for Power

GIGI's hardware design incorporates the latest in microprocessor technology to give you a terminal powerful enough to handle your computing applications. Standard in-terminal intelligence (called firmware) includes a built in graphics instruction processor and a BASIC language interpreter that helps you perform complex graphics functions and programming applications with ease.

Although powerful, GIGI is small and compact and weighs less than 15 pounds (6.8 kg). This makes GIGI a portable educational tool that is simple, yet sophisticated, to learn and use. For easy maintainability, GIGI's design is modular and consists of only four parts: typewriter-style keyboard, single graphics/text logic board, power supply, and durable plastic casing. Built-in automatic diagnostics, that test basic functions each time you turn GIGI on, further assure product reliability.

GIGI is also flexible and supports a wide range of user-supplied monochrome and color monitors and video projectors. This allows you to select the monitor, multiple monitors, or projection system that best suits your needs and budgets.

GIGI's standard terminal features include:

- 8K of user programmable RAM (random access memory)
- ReGIS—GIGI's built-in Remote Graphics Instruction Set
- GIGI BASIC—GIGI's built-in BASIC interpreter

- Flexible, easy set-up procedures for controlling various terminal operations
- Graphics and text display formats including GIGI's exclusive feature that combines pictures and text within the same graphic display
- Programmable auxiliary keypad (for application-specific requirements)
- Multiple character sets: One base set (ASCII) and three user-defined
- Special screen controls: horizontal, diagonal, vertical scrolling; reverse video; easily controlled character spacing; and normal edit/screen control features
- Universal power supply

GIGI also has a standard RS232 serial interface port which can be used for either input or output. When interfaced to GIGI's companion DECwriter IV Graphics Printer, you can produce hardcopy output of your GIGI applications. GIGI's graphics printer is a low-cost, microprocessor-driven, desk-top printer. It uses a dot matrix printing technique which accurately reproduces every dot that appears on your monitor screen. One graphics printer can be shared between several GIGI's for added savings.

When GIGI's hardcopy port is not interfaced to the graphics printer, it can be used for input from a user-supplied graphics tablet. Using this art tablet, images you draw on the pad (illustrations, maps, charts, etc.) can easily be mapped to your monitor screen.

## ReGIS—The Heart of GIGI

The key to GIGI's graphics capability is its built-in instruction set called ReGIS. With ReGIS, you can quickly and easily draw pictures on a video monitor using lines, circles, and curves. You can display text with any of GIGI's four character sets and integrate drawings with your text for added visual effects. ReGIS also allows for absolute or relative positioning of text and pictures.

ReGIS commands are easy-to-remember, single mnemonics and are easily inserted in programs written in any language, such as BASIC, PASCAL, or FORTRAN. Distinctive characteristics, called attributes, can be assigned to your drawings and text to give emphasis and add variety to your screen displays. These attributes include:

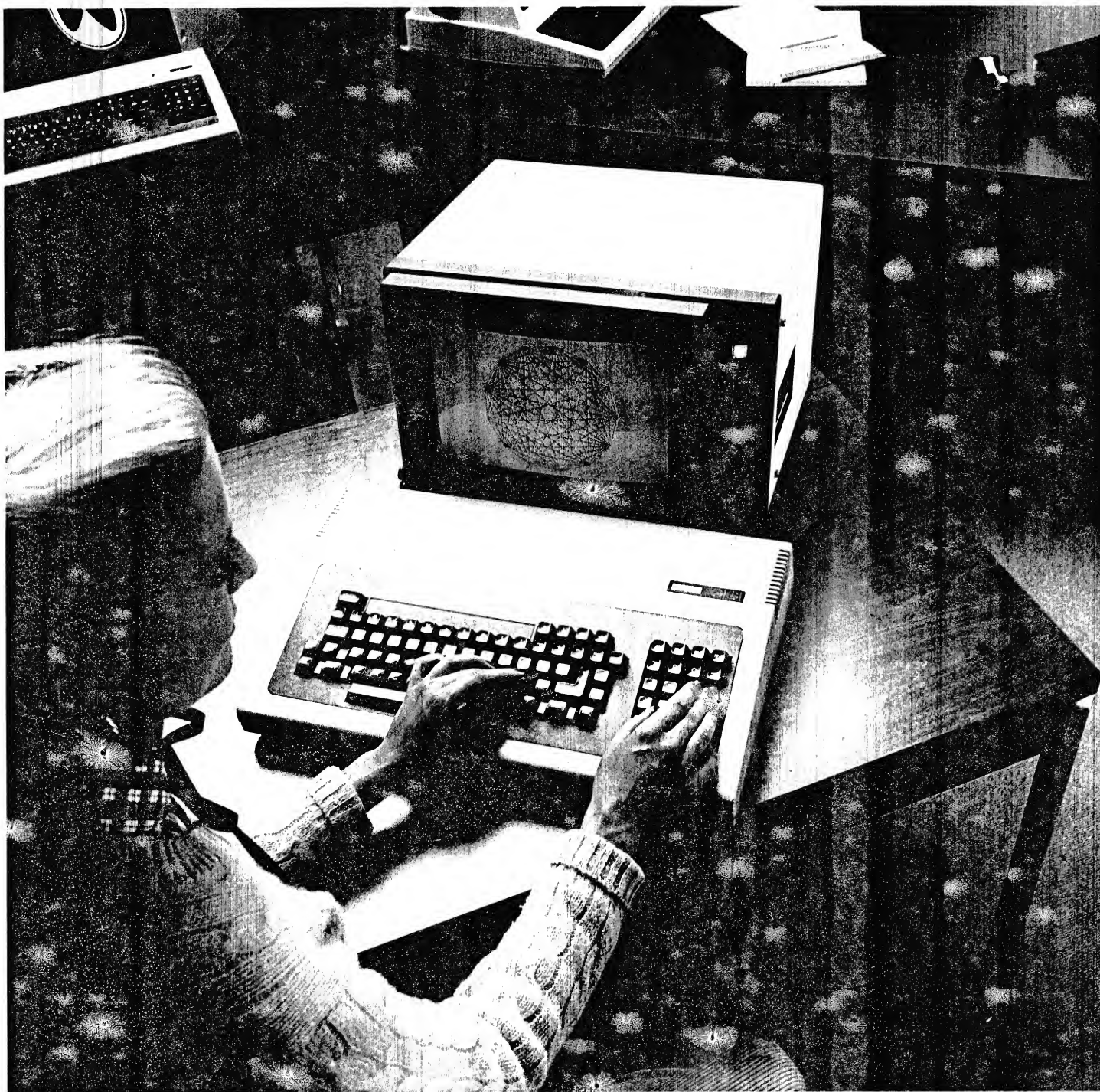
- Assigning color or intensity
- Reversing background color and drawing or writing colors
- Shading of figures with pattern or character
- Assigning pattern appearances to lines and figures
- Blinking
- Overlay, replace, complement, and erase writing of text
- Variable height and width characters
- Variable spacing and writing direction
- Italics

## BASIC—Tailored for GIGI

GIGI BASIC is a version of Microsoft's floating-point BASIC tailored to take full advantage of GIGI's unique terminal features. GIGI's BASIC is easy to use and provides the processing capability you need to develop and run local BASIC programs. Programs developed in GIGI BASIC can be stored on and retrieved from the host computer.

GIGI BASIC features include:

- Structured programming statements such as IF...THEN...ELSE, WHILE...WHILE END
- A full range of mathematical and string functions
- Built-in DECwriter IV printer control statements
- Automatic line numbering
- Interactive debugging
- Program storage and retrieval commands
- Error recovery statements
- Graphics controls



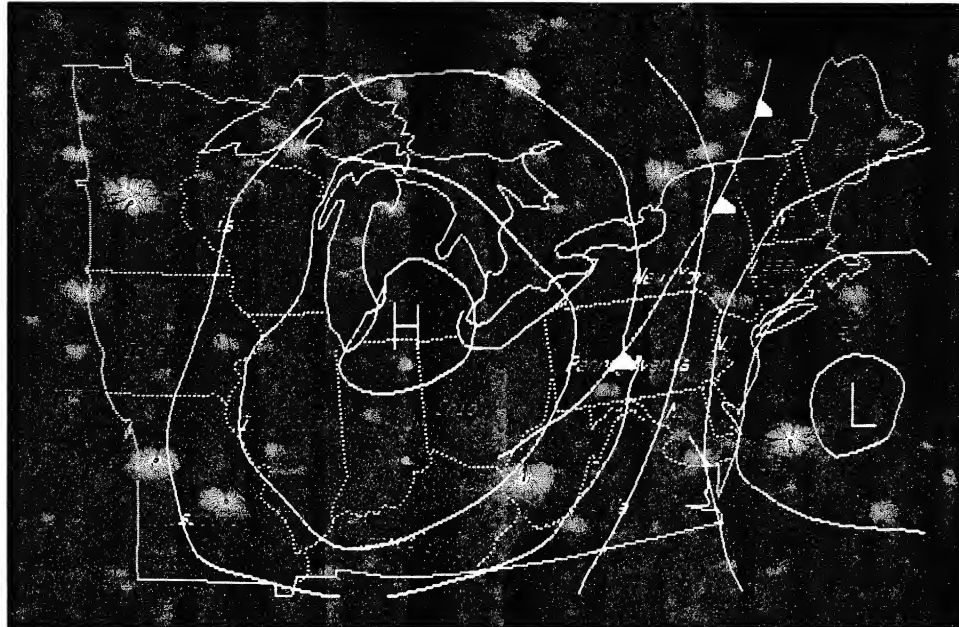
## Designed for Creativity

GIGI's real versatility is its applications software. Six major packages combine to give you a total software environment with tools **plus** applications for fast system use. Tools like simple, interactive editors that let you perform complex graphics functions with ease. Special applications that help you set up and display slide presentations; plot and analyze data; and tailor computing to your courses with special characters and symbols.

Then, to all this capability, we've added color. Used with a color monitor, GIGI brings your applications to life and communicates your messages faster. Colorful graphics help to visualize instructional theories and computer simulations. Multicolor graphs and charts separate and highlight certain elements for faster comprehension.

With GIGI, this is simple because the software is so easy to use. From our years of experience designing educational timesharing systems, we've learned how to develop software for a broad range of users. There is no need to be a programmer to use the powerful features in GIGI's versatile applications software. With a minimum of instruction, you can add GIGI graphics to your applications quickly and easily.

GIGI software is compatible. Written in FORTRAN IV, it runs under RSTS/E, VMS, and TOPS-20. Existing applications easily adapt to GIGI's features. With GIGI, your past software investment is protected while your future developments take on new dimensions.

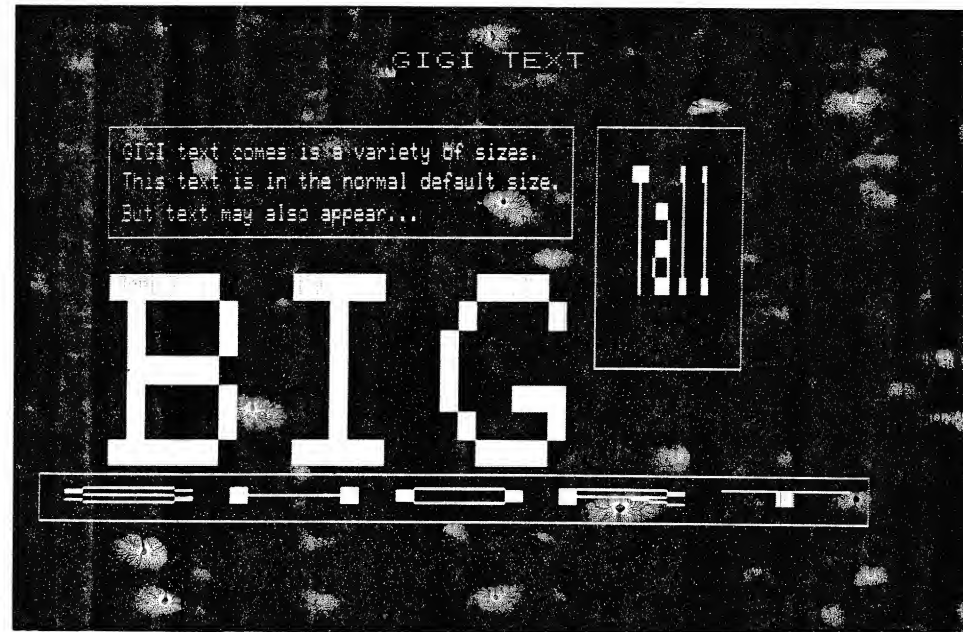


---

## Graphics Editor

With GIGI's interactive Graphics Editor, you can use simple keyboard commands to create, edit, and display visual images on your monitor screen. In no time at all, you will be creating graphical displays ranging from simple charts to complex drawings and geometric shapes. Graphics Editor features include:

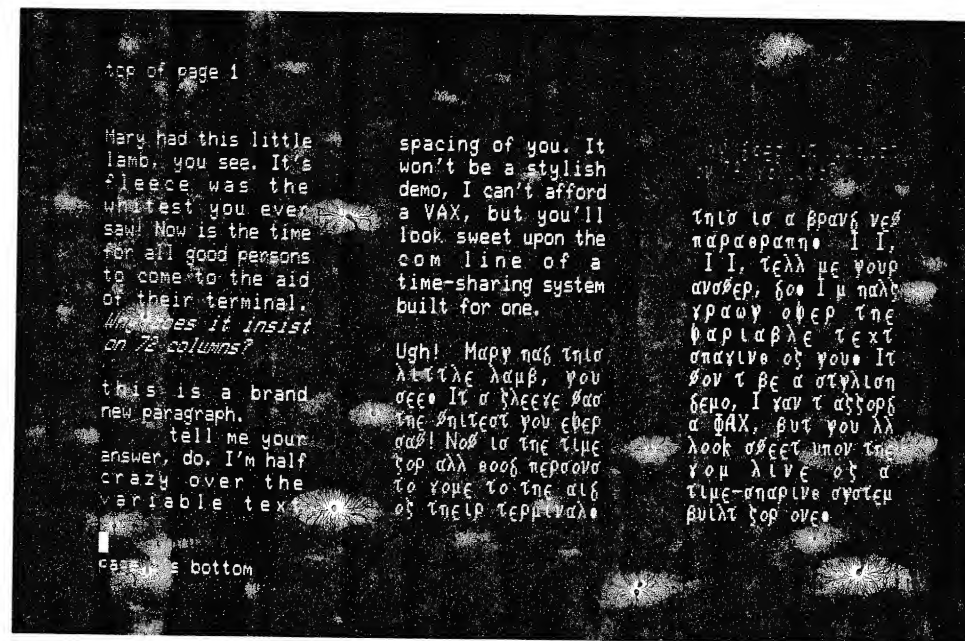
- Commands to create and edit graphic displays
- Commands to design lines, curves, circles, boxes, and text.
- Design attributes: blinking, pattern choice, pattern multiply, color shading, ink choice
- Text attributes: Alternate character fonts, variable width and height characters, sloping characters, and mosaic, normal, or special spacing.
- Special keypad overlay with self explanatory function labels (Initial supply of overlays included with every GIGI 5 Pack.)



## RITE

RITE (ReGIS Illustrated Text Editor) is GIGI's simple, compact, interactive text editor that allows you to manipulate text with simple keyboard commands. Using RITE, you can take pictures you have drawn with the Graphics Editor, and characters you have created with the Character Set Editor, and integrate them into files for use in academic and administrative text preparation applications. RITE features include:

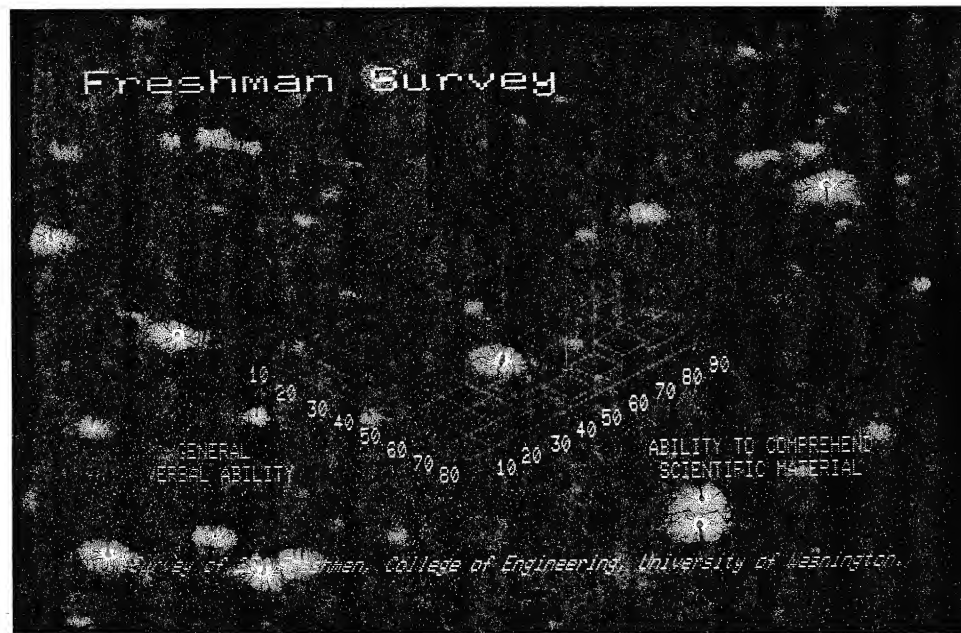
- Intermixed text and graphics
- Interactive font selection, proofreading, and hardcopy output
- Special text characteristics: fill/cut/paste, bold face, underline, inverted or negated video, italics, slanted, 9 sizes, color selection, flashing, sub/superscript, colored backgrounds, overstrike
- Interactive selection of alternate character sets
- Menu assistance/help commands
- Special keypad overlay with self-explanatory function labels. (Initial supply of overlays included with every GIGI 5-Pack.)



## Character Set Editor

With the GIGI Character Set Editor, you can design alternate character and special symbol sets to use on your GIGI terminal. The Editor provides commands for creating, manipulating, and editing character sets and for controlling a special split-screen format used in the design process. With this software feature, you can define APL, Greek, chemistry or any other special sets of characters to tailor GIGI's keyboard to your specific needs. Character Set Editor features include:

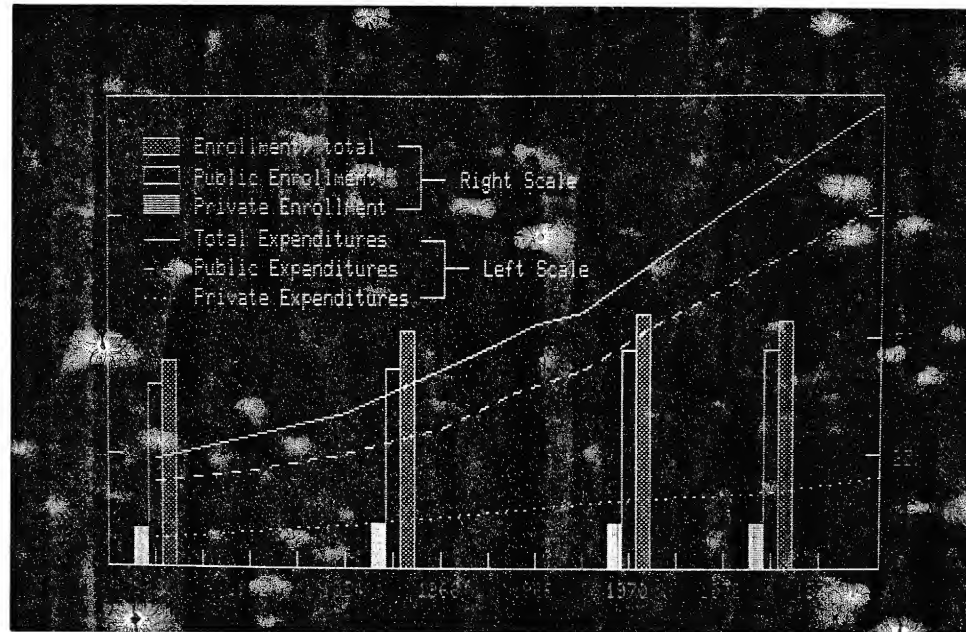
- Simple, 4-part screen format
- Keyboard overlays for user-created character sets (A supply of clear, blank overlays included with every GIGI 5-Pack.)
- Single and mosaic character composition
- Special keypad overlay with self-explanatory function labels (Initial supply of overlays included with every GIGI 5-Pack.)



## Data Plotting Package

The GIGI Data Plotting Package is an integrated system for data analysis that gives you statistical analysis and data plotting capabilities all in one. Designed as a generalized, basic package, it's easy to use and includes functions to satisfy both new and experienced users. In courses that use statistical analysis, GIGI's Data Plotting Package is an ideal teaching tool; used for exploratory data analysis, it gives users a quick look and feel for trends; and business managers and administrators will find it a valuable management tool. Data Plotting Package features include:

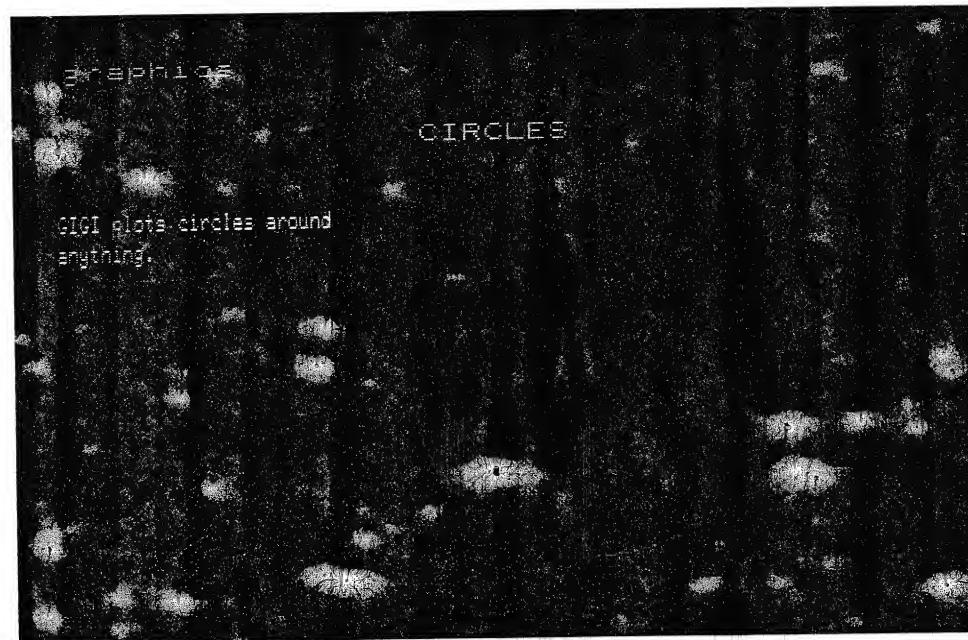
- Table building capabilities to enter, edit, and store data in tables to be used in graphs or charts.
- Plotting capabilities to plot data into bar charts or line plots.
- Basic statistical functions: mean, standard deviation, percentage
- Non-parametric comparative statistics: Chi-square
- Use of color to highlight information (when GIGI is paired with color monitor)
- Help messages to prompt users



## Slide Projector System

The GIGI Slide Projector System allows you to use the GIGI terminal like a slide projector. Existing ReGIS picture files created with the Graphics Editor, RITE, Character Set Editor, and Data Plotting Package can be organized, edited, and displayed on your video monitor or a large, overhead projection screen. As a presentation tool, GIGI's Slide Projector System is invaluable. Other features include:

- Easy commands to interactively create, edit, and display trays of slides
- 2 modes of projection operation: manual or automatic (under software control)
- Optional graphics printer hard copies of your slide presentations



---

## ReGIS Application Library

The ReGIS Application Library is a library of FORTRAN subroutines that lets you easily generate pictures with your GIGI terminal. Your own application programs can produce graphic representations from input or calculated data. With this Library, you can display simple illustrative drawings, provide geometric displays based on mathematical progressions, and produce scaled representations of simulations.

By calling the ReGIS Application Library routines, you can do the following:

- Define where your picture is to be drawn on the screen
  - Define your user coordinate system and what portion of your picture you will view
  - Draw picture objects such as lines, boxes, polygons, circles, arcs, and figures from previously-stored data
  - Shade picture objects with a filler character of your choice
  - Write messages with graphic text using one of GIGI's multiple character sets
  - Add color or shading to your screen display
  - Rotate graphic objects, move them, and scale them up or down
  - Erase graphic objects, make them blink, or reverse their video image on the screen
-

## Packaged for Economy

GIGI is packaged into convenient 5-Packs (plus associated materials) to give you everything you need to use your GIGI terminal on the first day it arrives. Experience has taught us how to save money through volume manufacturing and packaging techniques, and these savings are passed on to you whenever you buy GIGI in quantities of five.

GIGI's 5-Pack is a complete user package. In addition to 5 GIGI terminals (each packaged in reusable GIGI shipping cartons), it also includes GIGI applications software (Option A or B), a fully-configured DECwriter IV Graphics Printer, GIGI carrying cases, keyboard overlays, and a full set of quality user documentation. Everything you need to take full advantage of GIGI's powerful capabilities.

As an added savings, Digital has instituted a special agreement with BARCO Electronic n.v., a professional supplier of video monitor equipment. This agreement entitles all qualified GIGI customers to purchase BARCO's GD 33 high-quality, high-resolution color monitor at a significant discount.

But that's not all. GIGI's customers can save even more. Every GIGI 5-Pack comes with a number of GIGI Quotation Certificates which education customers can use to purchase additional GIGI's at greatly reduced prices.

The GIGI 5-Pack — Surprisingly affordable.

## GIGI Accessories

A full range of GIGI accessories is available from Digital's Accessories and Supplies Group. These include additional GIGI Carrying Cases, clear and preprinted keyboard overlays, and an assortment of various site cables.



## Custom Services ... Backed by Experience

At Digital, we take pride in the full range of customer services we provide. At your disposal are the resources of an international corporation that has the experience and expertise acquired from over 235,000 computer shipments worldwide. This experience, and the nature of GIGI's uniqueness, have combined together to develop new approaches to support that give you viable alternatives to traditional service offerings. A new approach to field maintenance, software support, and customer training have been designed for GIGI—custom-tailored and backed by experience—to help you get the most from your computing investments.

## Efficient CAI Training

Packaged with every GIGI 5-Pack/Option A is GIGI's CAI Primer, two complete mini courses designed to teach you all the basics of your GIGI terminal. Based on the concept of CAI (computer-aided instruction), both courses are taught **AT** the terminal and **BY** the terminal giving you control and flexibility to handle your own GIGI training. GIGI's CAI Primer highlights include:

- Complete, self-contained, computer-based courseware—No textbooks or course materials
- Self-paced instruction—Students learn interactively, under their control and at their own pace
- **GIGI Primer**—3 course modules on basic terminal operations, including a demonstration of GIGI's graphics capabilities
- **ReGIS Primer**—10 course modules on the use of ReGIS, GIGI's powerful graphics language
- Interactive course administration program to track student progress

Digital's GIGI CAI Primer—The cost-effective and time-efficient approach to computer-based training.



## Effective Field Maintenance

GIGI's compact size and lightweight design have fostered a new approach to field maintenance that offers maximum equipment availability through a convenient Servicenter approach. The "Return to Servicenter Maintenance Agreement" works as follows:

Using GIGI's reusable shipping carton, simply return GIGI to the Authorized Digital Servicenter in your area. (Authorized Digital Servicers are established throughout the world). At the Servicenter, Digital will perform necessary repairs, install engineering changes, thoroughly test each unit, and send GIGI on its way back to you—all within five working days. This service is available to all GIGI customers immediately following expiration of warranty.

Digital's Return to Servicenter Program—the fast, cost-effective way to satisfy your GIGI service needs.



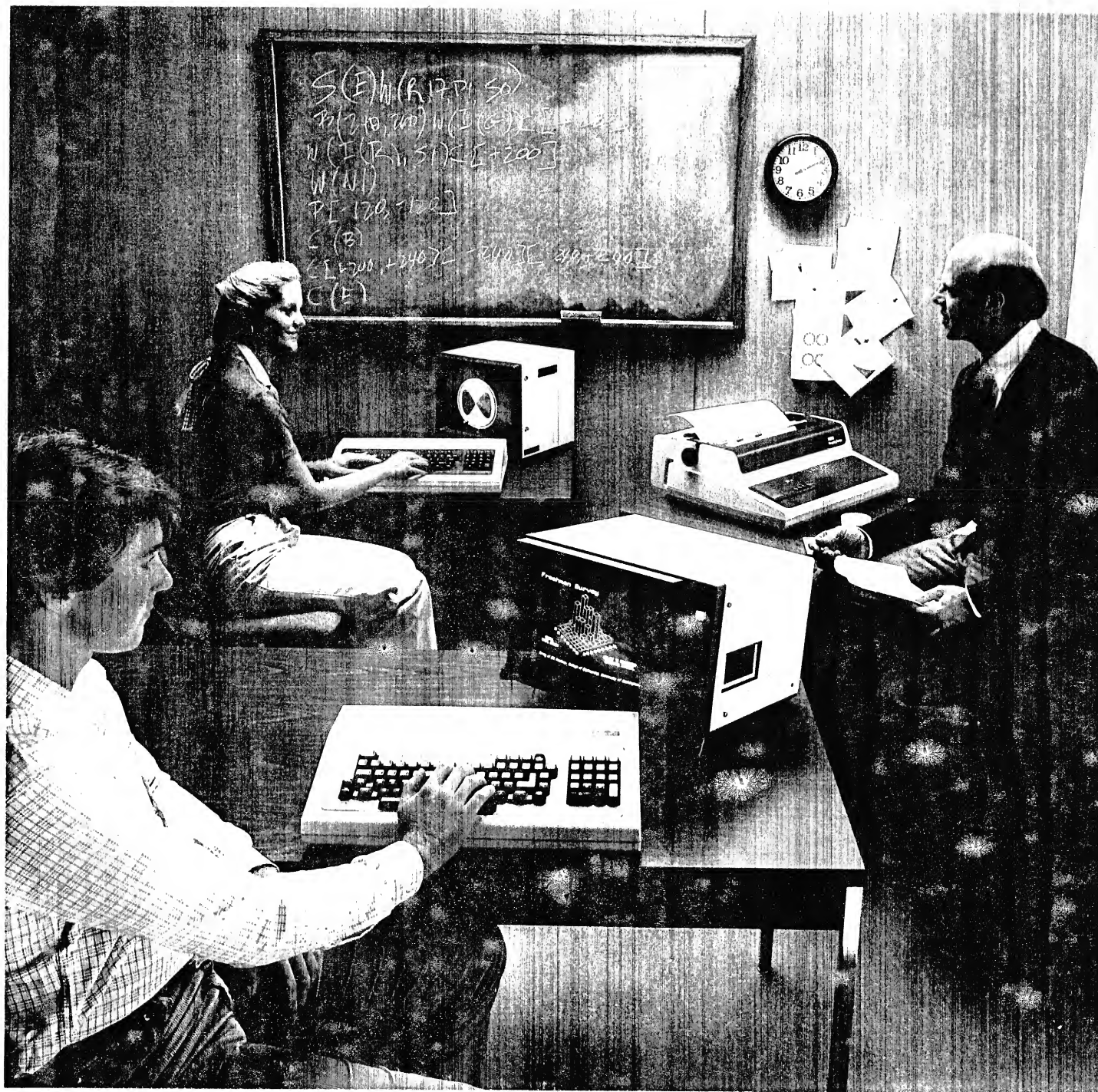
## On-Going Software Support

GIGI software support provides you with services that maintain your software and assure its reliability and performance. Under warranty support, you receive courtesy installation (in conjunction with installation of the host system), the Software Dispatch Service (to keep you posted on software bugs and patches), all updates to the software and documentation, and a telephone support service to aid in problem diagnosis and correction. Post-warranty Software Product Services are also available to service your on-going software requirements.

## Make the GIGI Connection

We'd like the opportunity to show you just why we're so excited about GIGI. Your local Digital Educational Sales Specialist is standing by to give you a live, hands-on demonstration. All our Educational Specialists have been trained to show you how to apply GIGI's powerful capabilities to your everyday applications.

Why not contact the Digital Sales Office nearest you today. If you're not sure where that is, send us the attached reply card and we'll help you out. We'll help you make the "GIGI Connection."



## GIGI Technical Specifications

### ARCHITECTURE

Microprocessor-based  
26K bytes ROM:  
ANSI and VT52 escape sequence processor  
ReGIS graphics command processor  
BASIC interpreter  
16K bytes microprocessor RAM  
32K bytes image RAM:  
768 x 240 x 1 image bit map  
64 x 240 x 4 attribute bit map  
Vector generator

### DISPLAY CHARACTERISTICS

#### Graphics mode:

768 pixels horizontal  
240 pixels vertical  
Remote Graphics Instruction  
Set (ReGIS) for graphics programming

#### Text mode:

24 rows of 84 characters each  
8 x 10 characters dot matrix  
Adjustable horizontal & vertical margins  
Permanent US ASCII and UK character fonts: 95 displayable characters in each

### Visual attributes:

Color output:  
8 colors, including black, blue, red, magenta, green, cyan, yellow, white  
Black & white output:  
8 gray levels  
Blink

### Cursors:

Graphics cursor: blinking open diamond  
Text cursor: blinking reversed-video block  
Locator cursor: blinking cross-hairs

### Video:

Color: RGB, with synch on green  
B&W: conventional composite video  
60 HZ/50 HZ refresh, non-interlaced or interlaced

### Keyboard:

65-key main keyboard  
18-key keypad  
key click/bell  
3 key rollover

### Indicators:

7 light-emitting diodes (LEDs)  
(2 of the 7 LEDs are program-controlled)

### Dimensions:

Height: 98.80mm (3.89")  
Length: 311.15mm (12.25")  
Width: 493.20mm (19.40")  
Weight: 15 lbs. (6.8kg) maximum

### Communications:

RS232/CCITT V28  
20 mA current loop (passive)  
Keyboard-selected data rate to 19200 baud  
Asynchronous serial  
Full duplex  
Independent transmit and receive data rates  
XON/XOFF support  
Special transmission modes:  
single character mode  
local echo mode  
programmable keypad codes  
Special receive modes:  
"display all" mode  
new line mode  
graphics debugging modes

### User-defined memory:

8K BASIC program and variables  
2K graphics program and programmable keys  
3K user-defined character sets:  
3 sets of 95 cells each, 80 bits per cell

### Auxiliary interface:

Interface for LA34-VA  
DECwriter IV graphics printer, each LA34 can be shared by two or more GIGIs  
Programmable, manual, and auto hardcopy modes  
Interface for user-supplied graphics tablet

### Maintenance aids:

Automatic power-up testing  
Operator-initiated self tests

### Input power:

120 VAC/240 VAC  
50 Hz/60 Hz  
120 VA max

### Product safety:

UL listing per UL 478  
CSA certification per CSA C22.2  
No 154 IEC 435 and VDE 0804 compliance  
FCC part 15 Class A computing device

### Environmental:

Temperature: 10°C to 40°C (operating)  
-40°C to 66°C (non-operating)  
Relative humidity:  
10% to 90% (operating)  
0% to 95% (non-operating)

EDUCATION COMPUTER SYSTEMS